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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,840	10/23/2003	Hitomi Ushitani	0756-7213	5406

31780 7590 11/27/2007

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EXAMINER	
SMITH, BRADLEY	
ART UNIT	**PAPER NUMBER**
2891	

MAIL DATE	DELIVERY MODE
11/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/690,840	USHITANI ET AL.	
	Examiner	Art Unit	
	Bradley K. Smith	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 12-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,12-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/23/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (US 2005/0087772). Yamazaki disclose forming a semiconductor over the substrate then forming a mask and then doping the substrate. Furthermore, Yamazaki disclose the modulation of the implantation and the mask [see 0098]. Regarding claim 3 Yamazaki disclose, forming a first semiconductor layer and a second semiconductor layer over a substrate; forming a first mask comprising a resist over the second semiconductor layer, adding a first impurity element having one conductivity, to the first semiconductor in accordance with the first mask by a doping method [0098]; removing the first mask.; forming a second mask comprising a resist over the first semiconductor layer; adding a second impurity element having a conductivity different from the one conductivity to the second semiconductor layer in accordance with the second mask [0099]; wherein an area of at least one of the first mask and the second mask is over an area of the substrate. Regarding claim 5-8, Yamazaki disclose forming a first semiconductor layer and a second semiconductor layer over a substrate; forming a first gate electrode over the first semiconductor film Iayer with a first gate insulator there between; forming a second qate electrode over the second semiconductor layer with a second gate Insulator there between(see figures 2C and 3C); forming a first mask comprising a resist over the second semiconductor

layer [0099]; adding an n-type impurity element to the first semiconductor [0099] in accordance with the first mask and the first gate electrode by a doping method with an acceleration voltage ; removing the first mask; forming a second mask comprising a resist over the first semiconductor layer [0098]; and adding a p-type impurity element to the second semiconductor [0098] in accordance with the second mask and the second gate electrode by a doping method with an acceleration voltage. With regards to claims 12-19, Yamazaki disclose the apparatus being in a display device. However, Yamazaki fails to disclose the mask precise parameters of the mask area and the implantation energy. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the the first or second mask at least 15% or 20 -40% at most, of the substrate area, and use an acceleration voltage of at least 60keV or 80keV, since in has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In Re Aller, 105 USPQ 233. Furthermore the use of a smaller mask are would enable one to dope more of the semiconductor also modulating the mask area is very well known in the art (see Jaeger Introduction to Microelectronic Fabrication pp 18-19). Also it is well known to modulate the ion implantation energy (that is why ion implantation is a preferred over other types of doping it is very easy to modulate) (see Jaeger Introduction to Microelectronic Fabrication pp 91-95).

Claims 20- 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki in view of Yamamoto et al. Yamazaki disclose the invention *supra*. However Yamazaki fails to disclose the that the substrate is has an area of one square meter. Yamamoto disclose the use of larger substrates in forming display devices (see 0002). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of

Yamazaki and Yamamoto, because the larger area would allow one process more devices more efficiently.

Response to Arguments

Applicant's arguments filed 9/17/07 have been fully considered but they are not persuasive.

Jaeger is used to prove that ion implantation and the modification of the implant energy was well known to those ordinary skill in the art at the time the invention was made.

In response to applicant's argument that the combined reference do not cure the same problem, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the examiner has clearly laid out the rational for the combination (i.e. to make the implantation process more efficient).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is 571-272-1884. The examiner can normally be reached on 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bradley K Smith
Primary Examiner
Art Unit 2891